

Application No. 10/667,909
Amendment dated MARCH 15, 2006
Reply to Office Action dated December 15, 2005

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (withdrawn) A method of making a reinforcing member adapted and configured for use in a medical device, the method comprising:

providing one or more structural elements adapted and configured for creating the reinforcing member, the one or more structural elements including a surface having a portion with an initial surface area;

treating at least the portion of the surface of the one or more structural elements to provide a final surface area that is greater than the initial surface area; and

creating the reinforcing member using the one or more structural elements.

2. (withdrawn) The method of claim 1, wherein the treating of the portion of the surface of the one or more structural elements occurs prior to the creating of the reinforcing member.

3. (withdrawn) The method of claim 1, wherein the creating of the reinforcing member occurs prior to the treating of the portion of the surface of the one or more structural elements.

4. (withdrawn) The method of claim 1, wherein the portion of the surface of the one or more structural elements has an initial surface texture, and wherein the treating step includes treating the portion of the surface of the one or more structural elements to provide a surface texture that is rougher than the initial surface texture.

5. (withdrawn) The method of claim 1, wherein the medical device is a catheter.

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6. (withdrawn) The method of claim 5, wherein the catheter is an intravascular catheter.
7. (withdrawn) The method of claim 1, wherein the reinforcing member comprises a reinforcing braid.
8. (withdrawn) The method of claim 7, wherein the one or more structural elements comprise one or more filaments of the braid.
9. (withdrawn) The method of claim 8, wherein the treating step includes treating at least a portion of a surface of the one or more filaments.
10. (withdrawn) The method of claim 8, wherein the creating step includes creating the braid using the one or more filaments.
11. (withdrawn) The method of claim 8, wherein the one or more filaments of the braid comprising one or more metallic filaments, polymeric filaments, or both metallic filaments and polymeric filaments.
12. (withdrawn) The method of claim 1, wherein the reinforcing member comprises a metallic material.
13. (withdrawn) The method of claim 12, wherein the metallic material comprises stainless steel, platinum, tungsten, nickel, titanium, gold, iridium, or an alloy or a combination thereof.
14. (withdrawn) The method of claim 12, wherein the metallic reinforcing member comprises stainless steel.

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15. (withdrawn) The method of claim 1, wherein the treating is performed by exposing the one or more structural elements to a chemical etch.

16. (withdrawn) The method of claim 15, wherein the chemical etch comprises an acidic chemical etch.

17. (withdrawn) The method of claim 16, wherein the acidic chemical etch comprises FeCl_3 , HCl , or HF .

18. (withdrawn) The method of claim 1, wherein the reinforcing member comprises a polymer.

19. (withdrawn) The method of claim 18, wherein the polymer comprises polyester, polyamide, acrylic, or combinations or mixtures thereof.

20. (withdrawn) The method of claim 19, wherein the reinforcing member comprises polyamide.

21. (withdrawn) The method of claim 1, wherein the treating is performed by mechanical working.

22. (withdrawn) The method of claim 1, wherein mechanical working comprises grinding, sanding, sandblasting, particle blasting, or microabrasion treatment.

23. (withdrawn) The method of claim 1, wherein other structural elements that have not undergone the treating step are also used in creating the reinforcing structure.

24. (withdrawn) The method of claim 1, wherein the one or more structural elements comprise one or more filaments, strands, wires, or combinations thereof that are used in creating the reinforcing structure.

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25. (withdrawn) A method of making a reinforcing member adapted and configured for use in a medical device, the method comprising:

providing one or more structural elements adapted and configured for creating the reinforcing member, the one or more structural elements including a surface having a portion with an initial surface texture;

treating at least the portion of the surface of the one or more structural elements to provide a final surface texture that is rougher than the initial surface texture; and

creating the reinforcing member using the one or more structural elements.

26. (withdrawn) The method of claim 25, wherein the treating of the portion of the surface of the one or more structural elements occurs prior to the creating of the reinforcing member.

27. (withdrawn) The method of claim 25, wherein the creating of the reinforcing member occurs prior to the treating of the portion of the surface of the one or more structural elements.

28. (withdrawn) A method of modifying at least a portion of the surface of a reinforcing member adapted and configured for use in a medical device, the method comprising:

providing the reinforcing member having a surface having an initial surface area;

treating at least a portion of the surface of the reinforcing member to provide a surface area that is greater than the initial surface area.

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29. (withdrawn) A method of making a reinforcing braid adapted and configured for use in a medical device, the method comprising:

providing one or more metallic filaments adapted and configured to create at least a portion of the reinforcing braid, the one or more filaments including a surface having a portion with an initial surface area;

treating at least the portion of the surface of the one or more filaments to provide a final surface area that is greater than the initial surface area; and

creating the braid using the one or more filaments.

30. (withdrawn) The method of claim 29, wherein the treating of at least the portion of the surface of the one or more filaments occurs prior to the creating of the braid using the one or more filaments.

31. (withdrawn) The method of claim 29, wherein the creating of the braid using the one or more filaments occurs prior of at least the portion of the surface of the one or more filaments.

32. (withdrawn) A method of creating a medical device including a reinforcing structure, the method comprising:

providing one or more structural elements adapted and configured to be made into the reinforcing structure for the medical device, the one or more structural elements including a surface having a portion with an initial surface area;

treating at least the portion of the surface of the one or more structural elements to provide a final surface area that is greater than the initial surface area;

creating the reinforcing member using the one or more structural elements; and
incorporating the reinforcing structure into the construction of the medical device.

33. (withdrawn) The method of claim 32, wherein the treating of the portion of the surface of the one or more structural elements occurs prior to the creating of the reinforcing structure.

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34. (withdrawn) The method of claim 32, wherein the creating of the reinforcing structure occurs prior to the treating of the portion of the surface of the one or more structural elements.

35. (withdrawn) The method of claim 32, wherein the medical device is a catheter.

36. (withdrawn) A method of making a medical device having a reinforcement member, the method comprising:

providing the reinforcing member;
treating the surface of the reinforcing member to provide a roughened surface; and
incorporating the reinforcing member into the construction of the medical device.

37. (withdrawn) A method of creating a catheter including a braided reinforcing structure, the method comprising:

providing one or more filaments adapted and configured to be made into the braided reinforcing structure for the medical device, the one or more filaments including a surface having an initial surface area;

treating the surface of the one or more filaments to provide a final surface area that is greater than the initial surface area;

creating the reinforcing braid using the one or more filaments, the braid including an outer surface, an inner surface, and a lumen extending therethrough;

connecting a polymer layer to one of the surfaces of the braid.

38. (withdrawn) The method of claim 37, wherein the connecting a polymer layer to one of the surfaces of the braid includes connecting an inner polymer layer to the inner surface of the braid.

39. (withdrawn) The method of claim 37, wherein the connecting a polymer layer to one of the surfaces of the braid includes connecting an outer polymer layer to the outer surface of the braid.

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40. (withdrawn) The method of claim 37, wherein the connecting a polymer layer to one of the surfaces of the braid includes connecting an inner polymer layer to the inner surface of the braid, and connecting an outer polymer layer to the outer surface of the braid.

41. (currently amended) A medical device including a reinforcing member, the medical device formed by the following process:

providing one or more metallic filaments structural elements adapted and configured to be made into the reinforcing member for the medical device, the one or more metallic filaments structural elements including a surface having a portion with an initial surface area;

treating at least the portion of the surface of the one or more structural elements to provide a final surface area that is greater than the initial surface area;

creating the reinforcing member using the one or more metallic filaments structural elements; and

incorporating the reinforcing member into the construction of the medical device.

42. (original) The medical device of claim 41, wherein the medical device is a catheter.

43. (currently amended) The medical device of claim 41, wherein the reinforcing member structure includes an outer surface, an inner surface, and a lumen extending there through.

44. (currently amended) The medical device of claim 43, wherein incorporating the reinforcing member into the construction of the medical device includes connecting an outer layer to the outer surface of the reinforcing member structure.

45. (original) The medical device of claim 44, wherein the outer layer comprises a polymer material.

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46. (original) The medical device of claim 43, wherein incorporating the reinforcing member into the construction of the medical device includes connecting an inner layer to the inner surface of the reinforcing structure.

47. (original) The medical device of claim 46, wherein the inner layer comprises a polymer material.

48. (currently amended) A medical device comprising:
a reinforcing member including a metallic filament structural element that includes a surface that includes a portion that has been treated to provide an increased surface area relative to a surface area of the portion prior to treatment;
one or more polymer additional structures connected to the treated portion of the surface of the metallic filament structural element;
wherein the increased surface area on the portion of the surface of the metallic filament structural element of the reinforcing member allows for a mechanical bond better connection between the reinforcing member and the one or more polymer additional structures.

49. (original) The medical device of claim 48, wherein the medical device is a catheter.

50. (original) The medical device of claim 48, wherein the reinforcing member includes an outer surface, an inner surface, and a lumen extending there through.

51. (currently amended) The medical device of claim 50, wherein the one or more polymer additional structures comprises an outer polymer layer connected to the outer surface of the tubular reinforcing member.

52. (currently amended) The medical device of claim 50, wherein the one or more polymer additional structures comprises an inner polymer layer connected to the inner surface of the tubular reinforcing member.

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53. (currently amended) A catheter comprising an elongated tubular body having a proximal portion, a distal portion, and a lumen extending there through, the tubular body comprising:

a metallic reinforcing member including a surface, wherein at least a portion of the surface has been treated to provide an increased surface area relative to a surface area of the portion prior to treatment;

a member made of a polymer material, the member being connected to the surface; wherein increased surface area of the reinforcing member allows the polymer material to create a mechanical bond with the surface.

54. (new) A catheter, comprising:

a braid including a plurality of metallic braid filaments each including a surface, wherein a portion of the surface of the filaments is chemically etched to provide a roughened surface; and

a polymer member connected to the braid.

55. (new) The medical device of claim 41, wherein the reinforcing member includes a braid.

56. (new) The medical device of claim 41, wherein the reinforcing member includes a coil.